

stages in a sequence of a non-elastomeric first stage, an elastomeric second stage and a non-elastomeric third stage, and

wherein the composition is capable of multiple passes through extrusion or molding.--

#### REMARKS

Prior to this Response and Amendment the claims pending in the application were Claims 1(amended twice), 3(amended), 7, 9(amended), 10(amended), 11, 12(amended twice), 13, 14(amended), 15(amended), 16(amended), 17, 18(amended), 19(amended) and 20.

After amendment, the claims remaining in the application are Claims 1(amended twice), 3(amended), 7(amended), 9(amended), 10(amended), 11, 12(amended twice), 13, 14(amended), 15(amended), 16(amended), 17, 18(amended), 19(amended) and 20(amended).

The claims stand under rejection and objection for various reasons.

Claim 20 stands rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The Examiner states "A specific ratio of inert filler is critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229,188 USPO 356 (CCPA 1976). The disclosure at page 10, lines 4-26 and Tables I and 11 demonstrate that fillers are required to enhance the visual differentiation between the cross linked polymer component and the thermoplastic matrix component

to provide the "mineral like" or "granite-like appearance of the finished composite plastic composition."

In response, the Applicant has amended claim 20 to include the inert filler.

Also, the Examiner points out the obligation under 37 CFR 1.56 to point out the inventor and invention date of each claim that was not commonly owned at the time a later invention was made in order for the Examiner to consider the applicability of 35 USC 103(c) and potential 35 USC 102(f) or (g) prior art under 35 USC 103(a).

All the claims in the present application are commonly assigned and have the same inventorship.

Lastly, Claims 1, 3, 5 - 7 and 9 - 20 stand rejected under 35 U.S.C., 103(a) as being unpatentable over USP 5,242,968 (Minghetti), USP 5,304,592 (Gharary) and USP 5,130,374 (Cozens).

The Examiner states:

Minghetti, note in the entirety; Ghahary, note column 1, lines 24-43, column 2, lines 20- 50, column, 3, lines 30-59 and column 4, lines 1-65; and Cozens et al, note column 2, lines 32-45, column 3, lined 63-68, and column 4, lines 1-65, teach and disclose acrylic thermoformable acrylic sheets, granite textured plastics and rigid thermoplastic compositions, process for producing the same that render the claimed composite plastics compositions, composite produced by said process for forming the same, extruded sheets and thermoformed product obvious. The prior art teach and disclose various cross-linked polymers and

thermoplastic matrix within applicants claimed ranges, which render the claimed invention obvious. It is further noted that Cozens teaches and disclose a polymethylmethacrylate matrix having cross linked polymethacrylate particles disperse therein, note Table 1, particularly example 5, as well as, columns 5 and 6 for specific cross linkers and column 7, lines 20-27 for the ratio of cross linkers that render the instant claimed cross linkers obvious.

The thermoformable sheets of Minghetti used as anti-slip surfaces in bathtubs and shower stalls that are reprocessed, note abstract, column 2, lines 12-15, lines 38 - 44 and column 5, line 62 to column 6, lines 1-5, 24-29 and 43-47 it is also noted that at lines 65-68 of column 2 of Minghetti provide teachings and disclosure that the syrup or suspending medium together with the ground PMMA becomes thixotropic and advantageously does not permit the swollen particles to settle, thus achieving an even distribution. This teaching clearly rebuts applicants' argument that the PMMA polymer is critical for controlling the particle settling in the matrix. It is the combination of the syrup or suspending medium together with the PMMA particles that creates a thixotropic mixture preventing the particles from settling.

Ghahary explicitly provides teachings that granite-plastics are useful in molding and thermoforming and that the granite-plastics are a combination of thermoplastic and thermoset plastic in a thermoplastic matrix and the method of making said matrix, note the abstract, column 2, lines 30-66. Patentee further teaches that the granite-plastic composition is

suitable for injection molding, blow molding, extrusion, etc, column 6, lines 1 to 18.

The prior art clearly teaches the artisan in the art that it would be reasonable to one of ordinary skill in the art that the thermoplastic matrix having particulate cross linked polymer dispersed therein of the prior art are within the ranges that encompass the ranges of the instant claims and that the composition is capable of multiple passes through extrusion or molding.

The prior art cited but not applied further teaches thermoplastic matrix having cross-linked polymers dispersed therein of the same nature as claimed by applicant.

The Applicants have reviewed the cited art and the Examiner's comments. The Applicants believe that the references, individually or jointly, do not teach, suggest or disclose the present invention.

The present invention is directed to thermoplastic resin which can be repeatedly thermally processed into objects having a granite appearance and which can be recycled and/or reused again.

In particular, the present invention relates to a composite plastics composition comprising a particulate crosslinked polymer dispersed within a thermoplastic matrix.

The crosslinked polymer:

- (a) comprises 10 to 45 weight percent of the composite plastic composition,
- (b) has a particle size substantially from 0.2 to 1.2 millimeters,
- (c) is comprised of 0.1 to 15 weight percent inert filler and 0.1 to 20 weight percent crosslinker, based on the total weight of crosslinked polymer, and
- (d) is visually differentiable from the thermoplastic matrix.

These cross-linked particles have sufficient integrity and strength but still are flexible enough to be extruded and tough enough to maintain particle integrity after multiple passes of extruders.

The thermoplastic matrix (a) comprises 50 to 100 weight percent poly(alkyl (meth)acrylate) and zero to 50 weight percent impact modifier, based on the weight of thermoplastic matrix and (b) the matrix has been toughened by modifiers in order to sustain the severe extrusion shearing during multiple passes of extruder.

The impact modifier is a multi-stage sequentially-produced polymer comprising at least three stages in a sequence of a non-elastomeric first stage, an elastomeric second stage and a non-elastomeric third stage.

The Applicants have found, unexpectedly and surprisingly, that this composition is capable of being extruded or injection molded multiple times. Such granite-

appearing compositions are not disclosed, taught or suggested in the prior art.

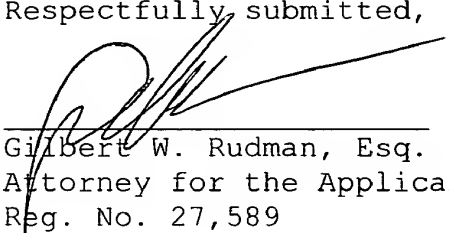
In contrast, Minghetti teaches a method of making granite sheet by cell casting process (see the Examples wherein the compositions are cured in a cell). A sheet made in this manner can be somewhat thermoformed, that is it can be limitedly reshaped or have its surface texture modified; however, it cannot be extruded or injection molded as required in the present invention.

Ghahary teaches it is critical to utilize particles that are a combination of thermoplastic and thermoset materials in order to suspend the particles in liquid thermoplastics. In the present invention crosslinked thermoset particles are used to create granite-appearing articles. The crosslinked thermoset particles can sustain the severe shearing of multiple passes through extrusion and molding. The Gharhary particles, a combination of thermoplastic and thermoset materials, can be extruded once to form pellets but cannot sustain the shearing resulting from multiple passes through extrusion or injection molding as is needed in the present invention.

In view of the above, the Applicant believes that the claims herein should now be allowable to the Applicant.

Accordingly, reconsideration and allowance are requested.

Respectfully submitted,



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Attachment:

Clean Version of Proposed Amended Claims